crew, or interfere with the operation of a merchant ship. However, Dr. Clinton H. Maag, head of the life sciences department at the Point Magu Naval Missile Center, who was in the scientific party on the *Java Mail*, told the committee, "we have come back with a relatively large volume of data, especially large when one considers the actual investment in the cruise" (about $14,000).

The crucial question was whether oceanographic work could be done while the *Java Mail* was traveling at normal cruising speeds (above 15 knots); oceanographic research vessels usually either lie to or move very slowly when collecting samples or data. The work had to be done without requiring the ship to slow or alter course and without interfering with the crew.

In addition to sowing drift cards and bottles, the scientific party took salinity samples, made continuous surface-temperature measurements, and collected zooplankton with a "jet net," a high-speed sampler with an intake designed to minimize water turbulence. According to the scientists, they picked up samples of zooplankton and larval animals at 16 knots and found 75 percent of the samples in "excellent" condition.

The development of suitable instruments and rapid collection devices is a key factor in realizing the ships-of-opportunity idea. The jet net seems to point the way, and so does an "expendable bathythermometer," which detaches itself from a float after being cast overboard and then transmits data, via a wire, as it sinks to the bottom of the sea. Advocates of the ships-of-opportunity concept admit that much needs to be done with instrumentation, and they hope that industry will be motivated to step up R & D in this sector by the voyage of the *Java Mail* and by Project Neptune–Atlantic, now in the offing under the aegis of Florida Atlantic University, Boca Raton.

Research ships of opportunity appear to have special appeal to marine biologists, many of whom tend to see themselves cast in the role of stepchildren in the family of oceanography. They complain that deep-water research voyages are too often planned to suit the requirements of those who do physical and chemical oceanography at the expense of the seagoing biologists.

While ships of opportunity may in fact provide splendid platforms for research in fair weather and foul, the use of such ships would seem to be only half the battle. At the hearing James M. Snodgrass, head of special development at the Scripps Institute of Oceanography, indicated this as a mild caveat in what was otherwise a morning of unrelieved optimism. Feasibility of the ship-of-opportunity he viewed as demonstrated, but he noted the importance of the quality of instruments.

"This, perhaps in a major way," he said, "accounts for our slowness in being able to start, since it is only at the present time that suitable instruments have in fact been available. They are by no means perfected at the moment, but they are workable and quite practicable and usable. This in a way has opened up the basic concept of expendable or disposable instruments. It is in fact a major change in the availability of tools which the oceanographer has at his command. I think without question this new concept is so significant that it will require a great deal of rethinking of our methods of operation, and further, it changes our basis of costing out the system.

"We have entirely new relationships which we must think about. All of this, of course, underscores the necessity of careful planning. It is quite obvious that a major ship-of-opportunity program, assuming it gets underway, could, without proper direction, literally flood scientific laboratories with plankton samples. This is rather easily done. It would be disastrous.

"We need careful planning. The ship-of-opportunity program needs to be a part of a system operation, integrated with the necessity for collecting data. We must have a need for the data, and a valid use for it. We do not wish to collect data for data's sake."

—JOHN WALSH

De Gaulle: President of France Calls for a Harder Line in Behalf of French in International Science

President Charles de Gaulle has ordered French scientists and diplomats to the barricades in the cause of the use of French at international scientific meetings.

De Gaulle first dispatched a letter to the French Academy of Sciences in which he reportedly took French scientists to task, saying, "It is indeed deplorable that the French language, so remarkably suited in its clarity and precision to the expression of scientific thought, is too often betrayed even by those who should insure and require its use."

He followed this up on 30 March with a letter to the foreign ministry ordering the gentlemen of the Quai d'Orsay to insist on French translations of all working documents at international scientific meetings.

The Washington *Post*'s man in Paris, Waverly Root, suggests that de Gaulle was encouraged to take pen in hand by the academy itself, which recently passed a resolution lamenting "pressures applied by certain international organizations . . . in favor of the English language alone." The academy has lately been striving to purge scientific French of coined words and words which have infiltrated from other languages, particularly English.

De Gaulle's concern about the fortunes of the French language is an understandable one for a military man and politician who is also a formidable prose stylist, as his memoirs prove. And there is precedent for the international use of French in its history as the language of diplomacy.

But his action is sure to be interpreted as another swipe at the Anglo-Saxons (his term for the British and Americans) and attributed to the same motives which prompted him to blackball Britain for membership in the Common Market, refuse to sign the limited test ban treaty, torpedo the idea of a multilateral nuclear fleet, push trade and diplomatic ties with the Chinese Communists, go his own way on Southeast Asia, and cash in dollars for gold and call, apparently, for a return to the gold standard, all to the considerable discomfort of the Anglo-Saxons.

As this was written, neither the French embassy in Washington nor offices which deal with international science in the State Department and other agencies had word of any specific measures contemplated to promote equality of French in international scientific affairs.

Any hopes that de Gaulle may have for a sudden rise in status for French as a language of science, however, appear to be quixotic. By the practical test of numbers of articles in the scientific journals of the world—generally accepted to be a rough indicator of scientific activity—French is far outstripped by English and Russian and in many fields of research seems to be

running definitely behind German and Japanese.

Writing in the January issue of *Physics Today*, Robert T. Beyer, in an article titled "Hurdling the language barrier," reported the results of an analysis he made of a sample of 3000 abstracts from the latest issue of *Physics Abstracts*. About 76 percent of the articles in the sample were originally written in English, 14 percent were written in Russian, 4 percent in German, and 4 percent in French. Other languages accounted for only 2 percent.

Allowance has to be made for the prejudices of the editors in favor of English and other European languages, but it is undeniable that *Physics Abstracts* is a chief source of reference for physicists throughout the world.

A similar analysis, reported in *Chemical and Engineering News* of 17 July 1961 and based on *Chemical Abstracts*, traced articles to countries rather than languages. This analysis showed that 27.1 percent originated in the United States, 19.1 percent in the Soviet Union, 13.8 percent in the United Kingdom and Commonwealth countries, 7.8 percent in Japan, 7.8 percent in Germany, and 5 percent in France.

Studies show that the Soviet Union and Japan have registered the most important increases in contributions to scientific literature. Many observers see signs, however, of a significant rise in scientific productivity in France in coming years. And this is largely because de Gaulle, as President, has been, along with other better-publicized things, a great technocrat.

It should be noted that the ascendancy of English in scientific literature is in part due to the growing tendency of scientists in non-English-speaking countries—in Scandinavia, the Netherlands, and Japan, for example—to write in English. And, as Beyer points out in his article, some Continental and Japanese journals are publishing partly or wholly in English.

A massive translation program in the United States, which has concentrated largely on Soviet publications, has also acted to increase the hegemony of English.

Contributing, in a rather unflattering way, to the triumph of English has been the fact that the British have long been renowned as the worst linguists in Europe and that Americans probably surpass them.

There are unquestionably strong incentives for scientists to find a common language, and English, by a series of accidents, seems to have become the *lingua franca* of science. The French are famous for their cultural chauvinism, but it appears likely that among French scientists, in this matter of language, another famous Gallic characteristic, realism, will prevail.

—JOHN WALSH

Wooldridge Report: Study of NIH Producing Conflicting Reactions among Congressional Figures

Within congressional circles concerned with medical research, the Wooldridge report on the National Institutes of Health (*Science*, 26 March) has stirred some curiously contradictory reactions.

Those members who have helped to accelerate NIH's growth are delighted with the report, and feel that its endorsement of the NIH program opens the way politically for resuming the practice of adding substantial funds to the administration's budget request. But Representative L. H. Fountain (D–N.C.), whose investigations led to a cooling of congressional affection for NIH, says he finds ample substance in the report for his contention that the billion-dollar NIH operation contains serious deficiencies.

What the difference boils down to is a matter of judgment on certain key parts of the report. The committee, in concluding that "few, if any, one billion dollar segments of the federal budget . . . are buying more valuable services for the American people than that administered by the National Institutes of Health," reported that in examining the quality of 240 extramural research grants, its investigating teams "expressed serious reservations about 9 projects and adjudged 7 to be unworthy of support." And it went on to state that, "in scientific research, such a ratio of ill-advised projects, when judged after the fact, is impressively low."

Fountain, however, indicated in a statement to *Science* that he feels otherwise. "The 'ill-advised' projects . . . ," he said, "constituted about 6.7 percent of the total. . . . When NIH is spending well over half a billion dollars a year on research grants, we should not be complacent about the waste represented by ill-advised projects amounting to almost 7 out of every 100. I am disappointed that the Committee did not concern itself more with improving NIH policies and procedures to reduce or eliminate this waste."

Fountain also disputed the committee's finding that, "despite the 10-fold increase in NIH support of research during the last 8 years, there is no evidence of overall degredation in quality of the work supported." The congressman stated that "this, of course, is a judgment unaccompanied by supporting facts and one which is contrary to the evidence of a steady decline in recent years in the priority ratings assigned to projects by the study sections. The proportion of the best projects has declined, while there has been a corresponding increase in the proportion of supported projects in the lowest priority groups."

Fountain added an endorsement of the findings of the Wooldridge committee's administration panel, which, among other things, called for closer surveillance of the NIH program by the NIH administration and the grantee institutions. The panel's findings, he said he was pleased to note, were similar to those of his own investigating committee.

At this point, it is difficult to estimate the effect that Fountain's reservations may have on congressional efforts to go beyond the administration request of $1.146 billion for NIH in fiscal 1966. From comments made in the course of appropriation hearings last year, it is clear that Representative John Fogarty (D–R.I.) and Senator Lister Hill (D–Ala.), the congressional angels of medical research, are impatient to resume the rapid growth pace that characterized NIH through the late 1950's and into the first 2 years of this decade. Because of doubts raised by Fountain's investigations, and because of the public impression that medical research was wallowing in money, they chose to back off, rather than risk defeat, and in the past 2 years NIH has operated on a financial plateau. The sums have grown a bit, but in general growth has simply kept pace with higher costs of existing programs.

This year, however, it is reported that efforts may be made to add at least $50 million, and possibly a good deal more than that, to the administration request. It is also reported that Fountain may hold public hearings on a number of matters that could prove embarrassing to NIH. Among them is the matter of overhead payments to grantee institutions. The present regulation calls for payment of up to 20